Multimedia Library of Clinical Cases:
Multimedia User Interface

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The first six cases of a comprehensive library of clinical cases for medical education have been completed. The user interface and program structure have been kept simple, so that the creation of a large number of cases might be possible. Case resources include digital sound, motion and still images.

Patient management problems (PMPs), paper- or computer-based, have been used widely in medical education as supplements to patient-based teaching for years. PMPs can give medical students access to diseases that are crucial for clinical training but which are not currently on the hospital ward or service. Computer-based problems can provide repeated access to identical and reproducible "patients" beyond what can reasonably be asked of real ones. PMPs can also provide practice in diagnosis and case management to residents and physicians to sharpen existing clinical skills. While computer-based PMPs have been written in a variety of clinical disciplines, no comprehensive set of PMPs for general medicine, incorporating multimedia elements, has been written.

Some clinical faculty at the Medical College of Pennsylvania, Thomas Jefferson University Hospital and Hamot Medical Center in Erie, Pennsylvania have begun developing cases for a multimedia Library of Clinical Cases for medical education. The goal of the project is to create a comprehensive collection of cases that would cover the "core" diseases in general internal medicine and family medicine that every medical student should see. Six cases out of a projected 60-100 cases have been developed in digital multimedia format, currently for Windows PCs, but eventually for use on the Macintosh as well.

A list of core diseases for general medicine was determined by a combination of polling of clinical clerkship directors and consulting hospital admissions statistics. Core diseases were those that were both frequent and judged important by the clinical educators. For diseases that vary markedly in presenting symptoms or for diseases that should be presented at several stages in the progression or severity of the illness, multiple cases will be collected. An advisory board of physicians also reviewed the disease list.

Physicians recorded on templates the narrative content of actual cases in their practice or of composite cases based on their experience. The cases were then reviewed by other physicians and by the project editors. Diagnostic "red herrings," unless they were commonly occuring findings, were eliminated. Multimedia data (still and moving images and audio) were obtained in a variety of ways. Case authors contributed 35 mm slides, and actual diagnostic charts and films related to the cases. Representative smears and slides were contributed by the MCP pathology labs, and standardized patients (actors) were trained and videotaped for motion sequences.

The Multimedia Library of Clinical Cases is an attempt to take some of the best features of existing PMP software, limit the interactivity in each case to ten or fewer decision points to reduce the incremental programming effort per case, and to make the scope of the collection comprehensive but selective. On the PC, the user interface to the cases was written in Microsoft Visual Basic (VB), accessing Microsoft Video for Windows using the Media Control Interface supplied with the VB Professional Edition. While digital motion video is still quite limited by storage and playback quality, computer-based multimedia allows rapid, low-cost, production, accumulation and manipulation of video and audio sources of clinical data for medical education.